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09/443,692	11/19/1999	TAKESHI ANDO	13191	7589

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EXAMINER

TSEGAYE, SABA

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/443,692	Applicant(s) ANDO, TAKESHI	
	Examiner Saba Tsegaye	Art Unit 2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3,5,8 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,3,5,8 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed on 10/21/05. Claims 2, 3, 5, 8 and 10 are pending. Currently no claims are in condition for allowance.

Claim Rejections - 35 USC § 103

2. Claims 2, 3, 5, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tiedemann, Jr. et al. (US 5,914,950) in view of Tanaka et al. (US 5,825,761).

Regarding claims 2 and 10, Tiedemann discloses a communication system capable of variable rate transmission. Remote station 6 from Fig. 1 initiates high-speed data transmission on the reverse link by requesting permission from channel scheduler 12 (receiving a transmission demand from each of a plurality of mobile station at a base station). See col. 6, lines 40-42. As shown in Fig. 2, the channel scheduler 12 connects to all selector elements within base station controller 10. See col. 7, lines 27-39. The channel scheduler is also able to schedule the information so that data can travel at that particular rate a predetermined number of frames later (determining a maximum transmission rate for a next schedule transmission time slot. . .). The scheduler 12 sends the maximum scheduled transmission rate **to each remote station** (transmission rate for each of a plurality of transmission channels). See col. 9, lines 47-54. The maximum transmission rate is found based on a number of factors. One of the factors includes the frame error rate (based directly on. . . a transmission error rate). See col. 18, lines 10-30. For example, the channel scheduler can assign lower transmission rates to remote stations if the FER is above a predetermined threshold. See col. 16, lines 33-43. Tiedemann also discloses the use of

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CRC bits for detection of frame error (error rate determined via a CRC for each mobile station).

See col. 27, line 62-col. 28, line 6. Tiedemann discloses that the data transmission rate is also

affected by **the channel condition** (taking account of radio wave propagation condition). See

col. 19, lines 17-19, and col. 20, lines 19-26. Tiedemann discloses that the data queue size is also

taken into consideration in assigning the maximum transmission rate. It follows logically that a

bigger data size will relate to a bigger queue size (taking account. . . a data size associated with

each said transmission demand). See at least col. 21, lines 48-67. Priority order can also be

established after taking various factors into account. See col. 32, lines 13-16.

Again, the amount of data to be transmitted is a factor in the discussion involving priority assignment (determining a priority order. . .based on the data size). See col. 32, lines 48-65.

Tiedemann also discloses that priority can be assigned based on the frame error rate (determining priority order. . .based on. . .the transmission error rate). See col. 33, line 58-col. 34, line 13.

Channel conditions can also play a role in priority, where a remote station can be temporarily be placed on hold until channel conditions improve, so it would have a very low priority of transmission (determining a priority order. . .based on the radio wave propagation condition).

See col. 33, lines 23-26. After processing the collected information, channel scheduler 12 assigns the maximum scheduled transmission rate that can be used by each remote station 6 for high speed data transmission over the reverse link (notifying each said mobile station of said maximum transmission rate determined at said base station).

However, Tiedemann dose not expressly discloses maximum transmission rate calculated directly from values representing **a radio wave propagation condition**.

Tanaka teaches that the maximum transmission rate is calculated directly from values representing a radio wave propagation condition (column 1, lines 24-30).

It would have been obvious to one ordinary skill in the art at the time the invention was made to use the teachings from Tanaka of adding a value representing a radio wave propagation condition to the collection of all pertinent information disclosed by Tiedemann in order to provide optimal assignment of maximum scheduled transmission rate for each scheduled user based on the collected information. One of ordinary skill in the art would have been motivated to do this because it would decrease the transmission delay in data communication in a CDMA system.

Regarding claim 3, the channel scheduler can wait until the next scheduling period and assigns a new rate based on the new-collected information. In this manner, the maximum rate can be variable (variably changing a transmission rate according to the maximum rate). See Fig. 7, and col. 9, lines 24-54.

Regarding claim 5, as mentioned previously, the system can use the FER information to determine the condition of a transmission path. For example, if there is a repeated frame error, then this can indicate that the reverse link is impaired (a transmission condition detecting means...detecting its error ratio). As mentioned previously, the mobile stations can demand up to a maximum rate, or less depending on what the mobile station requires. The system uses collected information to determine the rate needed by each channel (transmission rate detecting means), and it assigns a maximum rate based on this information (a maximum rate control

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information determining means). See Fig. 7, and col. 9, lines 24-54. The channel scheduler is responsible for sending the maximum rate information (notifying said mobile station of said maximum rate). See Fig. 7, and col. 9, lines 47-49.

Regarding claim 8, at a base station 4, the reverse link signal is received by antenna 44 and provided to RF unit 42. RF unit 42 filters, amplifies, downconverts, and quantizes the reverse link signal and provides the digitized signal to channel element 40. Channel element 40 demodulates the digitized baseband signal, the inverse of the signal processing functions done at remote station 6 (a demodulation device). See col. 7, lines 9-26. The scheduling system disclosed in Tiedemann can be applied to any communication system capable of variable rate communication-high speed data transmission occurs over a single variable rate channel (variable rate communication path). Based on collected information and system goals, the channel scheduler assigns the maximum transmission rate-some of this collected data and system goals can include channel condition and a priority list of required performance (determining maximum rate by taking account of radio wave propagation condition; a maximum rate control). See col. 19, lines 14-29, and col. 18, lines 24-30. The system uses collected information to determine the rate needed by each channel (transmission rate detecting means). As mentioned previously, the FER can be used when deciding on the transmission rate (detecting its error ratio).

Response to Arguments

3. Applicant's arguments filed 10/21/05 have been fully considered but they are not persuasive. Applicant argues (Remarks, pages 9-10) that Tiedemann Jr, et al. does not disclose

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or suggest “determining a maximum transmission rate for each of a plurality of transmission channels for a next scheduled transmission time slot for each said mobile station, as recited in the claims”. Examiner respectfully disagrees. Tiedemann Jr. et al. clearly discloses that channel scheduler assigns a maximum scheduled **transmission rate for each** scheduled user based on collected information. The channel scheduler is also able to schedule the information so that data can travel at that particular rate a predetermined number of frames later. See column 9, lines 47-54.

4. Applicant argues (page 10) that Tiedemann Jr. et al. provides “only one maximum rate that is applied to all transmission channel”. Examiner respectfully disagrees with Applicant contention. Tiedemann Jr. et al. discloses that channel scheduler calculates the total capacity available **for each cell** and assigns the maximum scheduled transmission rate for the scheduled task of **each remote station**.

5. Still on page 10, Applicant argues that “in Tiedemann Jr. et al. the maximum scheduled transmission rate is not the actual maximum transmission rate of a given transmission channel, but rather the least common denominator for all the transmission channels; contrastingly, Applicant’s claimed invention determines a maximum transmission rate for each transmission channel independently”. Examiner respectfully disagrees. Tiedemann Jr. et al. discloses that the available reverse link capacity is allocated to users based on a set of priorities. Priority is assigned based on a set of factors, such as, the list of cells supporting the user, the amount of data to be transmitted, the type of data to be transmitted, the type of data service being provided to the individual user, the amount of delay already experienced by the user, and other factors. This

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shows that the maximum transmission rate for each transmission channel is determined independently.

6. Applicant argues (page 11) that Tanaka et al. fails to disclose or suggest “determining a maximum transmission rate for each of a plurality of transmission channel for a next scheduled transmission time slot for each said mobile station”. It is respectfully submitted that the rejection is based on the combined teaching of the Tiedemann Jr. et al. and the Tanaka et al. patents, and that the Tiedemann Jr. et al. patent, as pointed out above does teach this feature.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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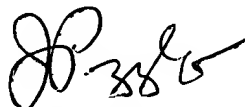
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saba Tsegaye whose telephone number is (571) 272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ST

January 6, 2006


JOHN PEZZLO
PRIMARY EXAMINER